

L Number	Hits	Search Text	DB	Time stamp
1	93	photoacid same (carboxylic adj acid)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 09:53
2	227653	surfactant	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 09:53
3	29	(photoacid same (carboxylic adj acid)) and surfactant	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:01
4	64	(photoacid same (carboxylic adj acid)) not ((photoacid same (carboxylic adj acid)) and surfactant)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:11
5	127282	sulfonic adj acid	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:13
6	278009	carboxylic adj acid	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:11
7	307147	photosensitive or photoresist	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:12
8	4045	(sulfonic adj acid) and (carboxylic adj acid) and (photosensitive or photoresist)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:12
9	22162	positive and photoresist	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:14
10	967	(sulfonic adj acid) and (carboxylic adj acid) and (positive and photoresist)	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:12
11	456	surfactant and ((sulfonic adj acid) and (carboxylic adj acid) and (positive and photoresist))	USPAT; EPO; JPO; DERWENT; IBM_TDB	2002/09/23 10:12
12	44039	(sulfonic adj acid) and (carboxylic adj acid)	USPAT	2002/09/23 10:13
13	16428	positive and photoresist	USPAT	2002/09/23 10:14
14	946	((sulfonic adj acid) and (carboxylic adj acid)) and (positive and photoresist)	USPAT	2002/09/23 10:14
15	456	surfactant and (((sulfonic adj acid) and (carboxylic adj acid)) and (positive and photoresist))	USPAT	2002/09/23 11:15
16	2	jp-2001100421-\$ did.	USPAT; JPO; DERWENT	2002/09/23 11:19
17	2	jp-2001033974-\$ did.	USPAT; JPO; DERWENT	2002/09/23 11:20
18	2	jp-2000258913-\$ did.	USPAT; JPO; DERWENT	2002/09/23 11:22
19	2	jp-2000235264-\$ did.	USPAT; JPO; DERWENT	2002/09/23 11:30

20	3	6270941.pn.	USPAT; JPO; DERWENT	2002/09/23 11:25
21	2	6156477.pn.	USPAT; JPO; DERWENT	2002/09/23 11:29
22	2	6274286.pn.	USPAT; JPO; DERWENT	2002/09/23 11:29
23	2	jp-11282163-\$ did.	USPAT; JPO; DERWENT	2002/09/23 11:56
24	0	photoacid adj mixture	USPAT	2002/09/23 11:31
25	18	photoacid near2 mixture	USPAT	2002/09/23 11:31
26	4	photoacid near2 blend	USPAT	2002/09/23 11:32
27	7	(carboxylic adj acid) and (photoacid near2 mixture)	USPAT	2002/09/23 11:34
28	2479	430/270.1.ccls.	USPAT	2002/09/23 11:34
29	609	corless	USPAT	2002/09/23 11:34
30	24	430/270.1.ccls. and corless	USPAT	2002/09/23 11:35
31	3654	ashton	USPAT	2002/09/23 11:35
32	7	(430/270.1.ccls. and corless) and ashton	USPAT	2002/09/23 11:38
33	2567	strong adj acid and weak adj acid	USPAT	2002/09/23 11:39
34	90	photoresist and (strong adj acid and weak adj acid)	USPAT	2002/09/23 11:39
35	39	(carboxylic adj acid) and (photoresist and (strong adj acid and weak adj acid))	USPAT	2002/09/23 11:40
36	2	jp-05181279-\$ did.	USPAT; JPO; DERWENT	2002/09/23 12:01
38	5	diphenyliodonium adj acetate	USPAT; JPO; DERWENT	2002/09/23 12:02
37	14	triphenylsulfonium adj acetate	USPAT; JPO; DERWENT	2002/09/23 12:34
39	2	5852128.pn.	USPAT; JPO; DERWENT	2002/09/23 12:35

(B) a **photocid** generator comprising two or more chemical compounds, one being a compound which upon exposure to radiation generates a **carboxylic acid** having a boiling point of 150. degree. C. or higher under atmospheric pressure and the other a compound which upon exposure to radiation generates an acid other than a **carboxylic acid** (the resin composition described above is hereafter referred to as "negative tone resin composition").

Detailed Description Text - DETX (55):

The **photocid** generator used in the positive tone resin composition (as the component (B)) and in the negative tone resin composition (as the component (B)) comprises two or more chemical compounds, wherein at least one of the constituents comprises "a compound that upon exposure to radiation generates a **carboxylic acid** having a boiling point of 150. degree. C. or higher under atmospheric pressure" (hereinafter called the "acid generator (B1)", and also at least one of the constituents comprises "a compound that upon exposure to radiation generates an acid other than a **carboxylic acid**" (hereinafter called the "acid generator (B2)").

Detailed Description Text - DETX (94):

Surfactant

Detailed Description Text - DETX (95):

Further, in the positive tone resin composition and the negative tone resin composition, **surfactants** may be compounded to improve coatability, striation control, or the radiation sensitive resin composition developability.

Detailed Description Text - DETX (96):

As such a **surfactant**, any anionic, cationic, nonionic, or ampholytic type **surfactant** can be used, while the nonionic type is preferred among those mentioned. Specific examples of nonionic **surfactants** include, in addition to those generically known as polyoxyethylene--higher alkyl ethers, polyoxyethylene--higher alkylphenyl ethers, and polyethylene glycol--higher fatty acid diesters, the product series commercially known under the trademarks of KP (manufactured by Shin-Etsu Chemical Co., Ltd.), Polyflow (manufactured by Kyoeisha Chemical Co., Ltd.), EF Top (manufactured by Tohken Product Co., Ltd.),

United States Patent (19)
Kobayashi et al.

(11) Patent Number: 6,136,500
(45) Date of Patent: Oct. 24, 2000

[54] RADIATION SENSITIVE RESIN COMPOSITION

[73] Inventor: Etsuro Kobayashi; Makoto Shimura; Tatsuyoshi Yamabe, Shiro Adachi, Iwasega, all of Yokohama, Japan

[77] Assignee: JSR Corporation, Tokyo, Japan

[21] Appl. No.: 09/135,633

[22] Filed: Aug. 18, 1998

[30] Foreign Applications Priority Data

Aug. 18, 1997 [JP] Japan 9-218463

[11] Int. Cl. G03F 7/00; G03F 7/03

[U.S. Cl.] 433/279.1; 436/214; 436/212

[51] Field of Search 430/275.1, 914, 430/921

[52] References Cited

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5,663,753 9/1997 March et al. 432/70

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0,977,780 11/1999 European Pat. Of.

43 23 269 1/1993 Germany.

Primary Examiner—Jean Stalter
Assistant Examiner—Rebecca A. Ashton

Attorney, Agent, or Firm—Ochiai, Spiro, McCall and
Maki & Novack, P.C.

[57] ABSTRACT

Positive as well as negative radiation sensitive resin compositions that, in addition to being capable of providing excellent resolution and pattern profile, are particularly suited to providing the precision of a negative-type resist material having a positive-type pattern. The positive-type radiation sensitive resin composition comprises (A) (a) an acid-decomposable group-containing acidic, or (b) an alkali-volatile resin and an alkali dissociation controller; and (B) a photogenerated generator comprising a compound that upon exposure to radiation generates a **carboxylic acid** having a boiling point of 150° C. or higher, and a compound that upon exposure to radiation generates an acid other than a **carboxylic acid**. The negative-type resist material has a core that comprises (C) a alkali-volatile resin, (D) a photo-crosslinking agent, and/or component (B) as described above.

12 Claims, 1 Drawing Sheet

US-PAT-NO: 5627006

DOCUMENT-IDENTIFIER: US 5627006 A

TITLE: Resist material

----- KWIC -----

Detailed Description Text - DETX (2):

In order to achieve the above object, the present inventors earnestly investigated in search of a combination of a polymer and a photoacid generator which permits sufficient chemical amplification to give a good profile of pattern without a change of the dimensions of the pattern with the lapse of time. Consequently, the present inventors found that when a polymer obtained by reacting isopropenyl alkyl ether, 2-alkoxy-1-butene, isopropenyl trimethylsilyl ether or isopropenyl benzyl ether with a resin having phenolic hydroxyl groups is used as resin component (a) and a photosensitive compound capable of generating a carboxylic acid, a weak acid upon exposure to light is used as photoacid generator (b), said polymer releases a protecting group very easily to become soluble in an alkali developing solution, without any influence of basic substances such as organic amines and ammonia which are generated in the production of a semiconductor device, so that the above object can be achieved. Thus, this invention has been accomplished. There has not yet been reported a technique of utilizing a carboxylic acid, a weak acid, in a chemical amplified type resist material, and it is surprising that various problems which have heretofore taken place can be solved by use of a carboxylic acid.

Detailed Description Text - DETX (10):

As the photosensitive compound (b) capable of generating a carboxylic acid upon exposure to light which is used in this invention (hereinafter abbreviated as "the photoacid generator"), any photosensitive compound may be used so long as it generates a carboxylic acid upon exposure to light and has no undesirable influence on the profile of a photoresist pattern. As photoacid generators particularly preferable in this invention, there can be exemplified compounds having in the molecule one or more diazoketo groups ($\text{--CO--C}(\text{dbd.N.sub.2})\text{--CO--}$) or one or more diazoketo groups ($\text{--CO--C}(\text{dbd.N.sub.2})\text{--}$) which are represented, for example, by the following formulas (1) to (6): ##STR6## wherein R.sup.1 is a hydrogen atom, a cycloalkyl

United States Patent (19)

(11) Patent Number: 5,627,006

(12) Date of Patent: May 6, 1997

(54) RESIST MATERIAL

(73) Inventor: Masayoshi Ono; Keiji Onozaki; Hiromitsu Fujita, all of Kawagoe, Japan

(73) Assignee: Yuki Pure Chemical Industries, Ltd.; Matsushita Electric Industrial Co., Ltd., both of Osaka, Japan

(21) Appl. No.: 08/320,220

(22) Filed: Apr. 18, 1995

Related U.S. Application Data

(33) Continuation of Ser. No. 08/315,154, Aug. 26, 1994, abandoned, which is a continuation of Ser. No. 08/039,777, Dec. 11, 1992, abandoned.

(30) Foreign Application Priority Data

Dec. 14, 1991 (17) Japan 3-307253

(13) Pat. Cl. # G03F 7/00; G03F 7/04

(23) U.S. Cl. 430/182; 430/70; 430/270.1; 430/324; 430/330; 430/322; 430/323; 430/324; 522/23.1; 522/23.2; 522/23.3

(38) Field of Search 430/905, 170, 152, 220, 223, 224, 222, 225, 226, 227

(56) References Cited

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Derwent Abstract of EP 0-400-000, Mar. 17, 1993.

Derwent Abstract of EP 0-414-979, Nov. 23, 1993.

Priority Examiner-John S. Cho
Attorney, Agent, or Firm-AZTECH, Westmont, Illinois
McLennan & Nease

(57) ABSTRACT

A photoacidic composition comprising (a) a diffusible soluble special resist, (b) a photo-sensitive compound capable of generating a carboxylic acid, and (c) a solvent. It is effective for pattern formation using deep ultraviolet light, X-ray or electron beam, etc.

14 Claims, 1 Drawing Sheet

US-PAT-NO: 5308744

DOCUMENT-IDENTIFIER: US 5308744 A

TITLE: Source of photochemically generated acids from diazonaphthoquinone sulfonates of nitrobenzyl derivatives

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Abstract Text - ABTX (8):

exhibits unprecedented sensitivity to actinic radiation. This compound is photochemically transformed from a non-acidic entity to photoproducts which contain both sulfonic and carboxylic acid functional groups. The acid generator is effective with polymers having acid labile groups, converting them into alkaline-soluble polymers, and with polymers which do not have such acid labile groups. Positive or negative working photoresist compositions containing the new photoacid generator have unparalleled performance characteristics because of the increased acidity generated per quantum of light.

Detailed Description Text - DETX (10):

Additives such as surfactants, anti-oxidants, pigments, dyes, sensitizers, and de-foaming agents may be incorporated into the photoresist compositions of this invention. Organic solvents are used to adjust the viscosity of the photoresist composition and facilitate the application of the photoresist to the substrate by spin coating, flow coating, roll coating, or any other conventional method. Examples of the solvents include ethyl lactate, glycol ethers, such as mono- and di-alkyl ethers of ethylene and diethylene glycol ethylene glycol, acetates and other lower carboxylic acid esters of the monoalkyl ethers, aromatic hydrocarbons, ketones, and the like. The concentration of the photoresist composition in the solution may be from about 25 to about 70% by weight.

United States Patent

Koss

US5308744A

Patent Number: 5,308,744

Date of Patent: May 3, 1994

[54] SOURCES OF PHOTOCHEMICALLY
GENERATED ACIDS FROM
DIAZONAPHTHOQUINONE SULFONATES
OF NITROBENZYL DERIVATIVES

[75] Inventor: Thomas A. Koss, Riverdale, Calif.
[73] Assignee: Micro Resistives, Inc., Chicago,
Ill.

[21] Appl. No.: 659,925
[22] Filed: Mar. 5, 1993
[15] Int. Cl.: G03F 1/12; G03F 1/10
[52] U.S. Cl.: 432/126; 432/125;
432/119; 432/172; 432/152; 432/170; 432/153;

432/157; 432/152; 131,183; 125;
432/120; 270,162; 134/154; 217

[56] Field of Search: 432/152; 131,183; 125;
432/120; 270,162; 134/154; 217

[58] Examinator: Clark

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Primary Examiner—Charles L. Brown, Jr.
Assistant Examiner—John S. Chin
Attorney, Agent, or Firm—Robert M. Districk; Gerald
E. White

[37] ABSTRACT
A new photoacid generator having the formula



Formula I

wherein
 R_1^{\bullet} =hydrogen, hydroxyl, or the $-\text{O}-\text{S}(=\text{O})_2-\text{O}-$ mol-

eC_6H_4-

$\text{R}_2^{\bullet}=\text{CH}(\text{CO}_2\text{R}')-\text{O}-$ or $-\text{NO}_2$

$\text{R}'=\text{H}$ or CH_3

R_3^{\bullet} =lower alkyl hydrogen

R^{\bullet} =hydrogen, $-\text{CH}(\text{CO}_2\text{R}')-\text{O}-$ or $-\text{NO}_2$ and

Q is a diazoquinophosphine monomer with the proviso

that R_1^{\bullet} is lower alkyl when R_2^{\bullet} is $-\text{O}-\text{NO}_2$ and

with the proviso that R_1^{\bullet} is H and R_2^{\bullet} is

exhibit unprecedented sensitivity to actinic radiation.

The invention is shown to be effective with an entity which exhibits both

non-acidic entity to photoproducts which contain both

sulfonic and carboxylic acid functional groups. The

acid generator is effective with polymers having acid

labile groups, converting these into alkaline-soluble

polymers, and with polymers which do not have such

acid labile groups. Positive or negative working photo-

acid compositions containing the new photoacid generator

have unparalleled performance characteristics

because of the increased acidity generated per quantum of light.

A preferred photoacid generator is made by reacting

2,6-dimethyl-3,3-dinitro-p-tolyl phenol with a diazo-

naphthoquinone sulfonate, ibidem.

13 Claims, 1 Drawing Sheet

Details Tex Image HTML KWIC

Details Tex Image HTML Full

TITLE: Radiation sensitive resin composition

PUBN-DATE: February 24, 1999

INVENTOR-INFORMATION:

NAME	COUNTRY
KOBAYASHI, EIICHI	JP
SHIMIZU, MAKOTO	JP
TANABE, TAKAYOSHI	JP
IWANAGA, SHIN-ICHIRO	JP

ASSIGNEE-INFORMATION:

NAME	COUNTRY
JSR CORP	JP

APPL-NO: EP98115537

APPL-DATE: August 18, 1998

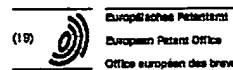
PRIORITY-DATA: JP23549597A (August 18, 1997)

INT-CL (IPC): G03F007/004

EUR-CL (EPC): G03F007/004

ABSTRACT:

CHG DATE=19990905 STATUS=O> Positive as well as negative radiation sensitive resin compositions that, in addition to being capable of providing excellent resolution and pattern profile, are particularly excellent in avoiding the problems of "nano-edge roughness" or "coating surface roughness". The positive type radiation sensitive resin composition comprises (A) (a) an acid-decomposable group-containing resin, or (b) an alkali-soluble resin and an alkali dissolution controller, and (B) a photoacid generator comprising "a compound that upon exposure to radiation generates a carboxylic acid having a boiling point of 150 DEG C or higher", and "a compound that upon exposure to radiation generates an acid other than a carboxylic acid". The negative type radiation sensitive resin composition comprises (C) an alkali-soluble resin, (D) across-linking agent, and the component (B) as described above. <IMAGE>



Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 0 898 201 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication:
04.02.1999 Stuttgart 1999,08

(21) Application number: 98115537

(22) Date of filing: 18.08.1998

(34) Designated Contracting States:
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU
MC NL PT SI
Designated Extension States:
AL LT LV MK RO SI

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Yokohama-shi, Mi-ku (JP)
- Tanabe, Takayoshi
Yokohama-shi, Mi-ku (JP)
- Iwana, Shin-ichiro
Yokohama-shi, Mi-ku (JP)

(30) Priority: 18.08.1997 JP 23549597

(71) Applicant: JSR Corporation
Tokyo (JP)(72) Inventor:
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(54) Radiation sensitive resin composition

(57) Positive as well as negative radiation sensitive resin compositions that, in addition to being capable of providing excellent resolution and pattern profile, are particularly excellent in avoiding the problems of "nano-edge roughness" or "coating surface roughness". The positive type radiation sensitive resin composition comprises (A) (a) an acid-decomposable group-containing resin, or (b) an alkali-soluble resin and an alkali dissolution controller, and (B) a photoacid generator comprising "a compound that upon exposure to radiation generates a carboxylic acid having a boiling point of 150°C or higher", and "a compound that upon exposure to radiation generates an acid other than a carboxylic acid". The negative type radiation sensitive resin composition comprises (C) an alkali-soluble resin, (D) across-linking agent and the component (B) as described above.

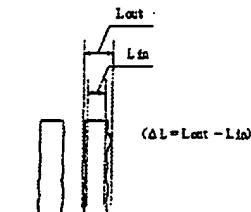


FIGURE 1

EP 0 898 201 A1

TITLE: Radiation sensitive resin composition

PUBN-DATE: February 24, 1999

INVENTOR-INFORMATION:

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KOBAYASHI, EIICHI	JP
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ASSIGNEE-INFORMATION:

NAME	COUNTRY
JSR CORP	JP

APPL-NO: EP98115537

APPL-DATE: August 18, 1998

PRIORITY-DATA: JP23549597A (August 18, 1997)

INT-CL (IPC): G03F007/004

EUR-CL (EPC): G03F007/004

ABSTRACT:

CHG DATE=19990905 STATUS=O> Positive as well as negative radiation sensitive resin compositions that, in addition to being capable of providing excellent resolution and pattern profile, are particularly excellent in avoiding the problems of "nano-edge roughness" or "coating surface roughness". The positive type radiation sensitive resin composition comprises (A) (a) an acid-decomposable group-containing resin, or (b) an alkali-soluble resin and an alkali dissolution controller, and (B) a photogenerated generator comprising "a compound that upon exposure to radiation generates a carboxylic acid having a boiling point of 150 DEG C or higher", and "a compound that upon exposure to radiation generates an acid other than a carboxylic acid". The negative type radiation sensitive resin composition comprises (C) an alkali-soluble resin, (D) cross-linking agent, and the component (B) as described above. <IMAGE>



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(11) EP 0 898 201 A1

(12) EUROPEAN PATENT APPLICATION

(43) Date of publication: 24.02.1999, Stuttgart 1999/08

(51) Int. Cl.: G03F 7/004

(21) Application number: 89115537.7

(22) Date of filing: 18.08.1998

(34) Designated Contracting States:
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MC NL PT SE
Designated Extension States:
AL LY LV MK RO SI

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(30) Priority: 18.08.1997 JP 23549597

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(34) Radiation sensitive resin composition

(57) Positive as well as negative radiation sensitive resin compositions that, in addition to being capable of providing excellent resolution and pattern profile, are particularly excellent in avoiding the problems of "nano-edge roughness" or "coating surface roughness". The positive type radiation sensitive resin composition comprises (A) (a) an acid-decomposable group-containing resin, or (b) an alkali-soluble resin and an alkali dissolution controller, and (B) a photogenerated generator comprising "a compound that upon exposure to radiation generates a carboxylic acid having a boiling point of 150°C or higher", and "a compound that upon exposure to radiation generates an acid other than a carboxylic acid". The negative type radiation sensitive resin composition comprises (C) an alkali-soluble resin, (D) cross-linking agent, and the component (B) as described above.

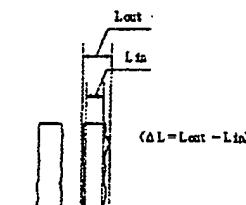


FIGURE 1

EP 0 898 201 A1

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DERWENT-ACC-NO: 1999-134799

DERWENT-WEEK: 200055

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TITLE: Positive and negative radiation sensitive resin compositions - containing mixed **photoacid** generator, which forms **carboxylic acid** of specified boiling point and noncarboxylic acid

----- KWIC -----

Title - TIX (1):

Positive and negative radiation sensitive resin compositions - containing mixed **photoacid** generator, which forms **carboxylic acid** of specified boiling point and noncarboxylic acid

Basic Abstract Text - ABTIX (1):

A positive-type radiation-sensitive resin composition comprises: (A) (a) an alkali-insoluble or an alkali low-soluble resin, which is protected by an acid-decomposable group and becomes alkali soluble when the protecting group is decomposed or (b) an alkali-soluble resin and an alkali dissolution controller, and (B) a **photoacid** generator comprising 2 or more compounds, one of which, on exposure to radiation, generates a **carboxylic acid** and of boiling point of 150 deg. C or higher at atmospheric pressure and another of which generates an acid other than a **carboxylic acid** on exposure to radiation. Also claimed is a negative-type radiation-sensitive resin composition comprising (C) an alkali-soluble resin, (D) a compound that can crosslink the alkali-soluble resin in the presence of an acid; and (E) a **photoacid** generator as (B) above.

Equivalent Abstract Text - ABEQ (1):

A positive-type radiation-sensitive resin composition comprises: (A) (a) an alkali-insoluble or an alkali low-soluble resin, which is protected by an acid-decomposable group and becomes alkali soluble when the protecting group is decomposed or (b) an alkali-soluble resin and an alkali dissolution controller, and (B) a **photoacid** generator comprising 2 or more compounds, one of which, on exposure to radiation, generates a **carboxylic acid** and of boiling point of 150

United States Patent (1)

Kobayashi et al.

(11) Patent Number: 6,136,500
(45) Date of Patent: Oct. 24, 2000

[54] RADIATION SENSITIVE RESIN COMPOSITION

[73] Inventor: Etsuro Kobayashi; Makoto Shimura; Takayoshi Tanabe; Shigeo Matsui; Iwemaga, all of Yokohama, Japan

[77] Assignee: JSR Corporation, Tokyo, Japan

[21] Appl. No.: 09/132,833

[22] Filed: Aug. 18, 1998

[31] Foreign Application Priority Data

Aug. 18, 1997 [JP] Japan 9-235461

[51] Int. Cl.': G03F 7/00; G03F 7/029

[52] U.S. Cl.: 433/270.1; 436/14; 436/212

[56] Field of Search: 433/270.1, 914, 433/911

[58] References Cited

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5,564,155 9/1996 Schmid et al. 436/212

5,653,029 7/1997 Maeda et al. 432/270.1

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246581 9/1993 Japan

140566 7/1993 Japan

43334 2/1997 Japan

Primary Examiner—Janet Stover
Assistant Examiner—Rebecca Astley
Attorney, Agent, or Firm—Ochiai, Spiro, McClellan, Inc.,
Mais, & Novak, P.C.

[57] ABSTRACT

Positive as well as negative radiation sensitive resin compositions that, in addition to being capable of providing excellent resolution and pattern profile, is particularly suitable for use in the production of integrated circuits or semiconductor devices. The positive-type radiation sensitive resin composition comprises (A) (a) an alkali-insoluble or decomposable group-containing resin, or (b) an alkali-soluble resin and an alkali dissolution controller, and (2) a **photoacid** generator comprising a compound that upon exposure to radiation generates a carboxylic acid having a boiling point of 150 C. or higher, and a compound that upon exposure to radiation generates an acid other than a carboxylic acid. The negative-type radiation sensitive resin composition comprises (C) an alkali-soluble resin, (D) a compound that can crosslink the alkali-soluble resin in the presence of an acid; and (E) a **photoacid** generator as (B) above.

12 Claims, 1 Drawing Sheet

Details

Text

Image

HTML

KMC

Details

Text

Image

HTML

Full

DERWENT-ACC-NO: 1993-236284

DERWENT-WEEK: 199724

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TITLE: Photoresist compsn. for prodn. of semiconductor devices - effective for pattern formation using deep UV light and excimer laser beams

----- KWIC -----

Equivalent Abstract Text - ABEQ (1):

A photoresist composition comprising (a) a resin which hardly dissolves in alkali obtainable by reacting isopropenyl alkyl ether, 2-alkoxy-1-buten e, isopropenyl trimethylsilyl ether or isopropenylbenzyl ether with a resin having phenolic hydroxyl groups, (b) a photosensitive compound which generates a carboxylic acid upon exposure to light as the photogenerated generator, and (c) a solvent capable of dissolving the components (a) and (b).

United States Patent (19)

Urano et al.

(14) Patent Number: 5,627,006

(45) Date of Patent: May 6, 1997

(54) RELATED MATERIAL

(73) Inventor: Masayoshi Urano; Keiji Oono;

Hirotachi Fujii, all of Kawagoe, Japan

KES Transactions on Electron Devices, Deep UV Photoresists I: Materials & Device Semiconductor vol. 15 No. 11, pp. 1300-1301.

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Derwent Abstract of JP 04-65338, Jun. 19, 1992.

Derwent Abstract of JP 04-65339, Jun. 19, 1992.

Derwent Abstract of JP 04-65340, Jul. 1, 1992.

Derwent Abstract of JP 04-65341, Jul. 1, 1992.

Derwent Abstract of EP 342,494, Nov. 23, 1993.

Primary Examiner-John S. Chu

Attorney, Agent, or Firm—Grossberg, Weisman, Harrel, Melnick, & Neugarten

(57) ABSTRACT

A photoresist composition comprising (a) a difficultly soluble special resin, (b) a photo-sensitive compound capable of generating a carboxylic acid and (c) a solvent is effective for pattern formation using deep ultraviolet light, KrF excimer laser beams, etc.

14 Claims, 1 Drawing Sheet

L14 ANSWER 1 OF 17 CAPLUS COPYRIGHT 2002 ACS
 AN 2002:673047 CAPLUS
 TI Storage-stable excimer laser-sensitive positive-working photosensitive compositions with reduced pattern variation on defocusing
 IN Kodama, Kunihiro; Sato, Kenichiro
 PA Fuji Photo Film Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 86 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002251012	A2	20020906	JP 2001-48784	20010223

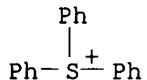
AB The compns. comprise (A) photoacid generators, (B) resins contg. alicyclic hydrocarbon structures, which increase their alkali solv. by acid decomn., (C) base compds., and (D) fluoro- and/or silicone-based surfactants, wherein the photoacid generator is a mixt. of triarylsulfonium salts and non-arom. sulfonium salts. The compns. are useful for chem. amplified photoresists suitable for halftone phase-shift masks.

IT INDEXING IN PROGRESS
 IT 19600-49-8, Triphenylsulfonium acetate
 RL: TEM (Technical or engineered material use); USES (Uses)
 (base compd.; chem. amplified storage-stable excimer laser-sensitive pos. photoresists with reduced pattern variation on defocusing)

RN 19600-49-8 CAPLUS
 CN Sulfonium, triphenyl-, acetate (8CI, 9CI) (CA INDEX NAME)

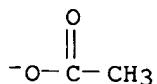
CM 1

CRN 18393-55-0
CMF C18 H15 S



CM 2

CRN 71-50-1
CMF C2 H3 O2



L14 ANSWER 7 OF 17 CAPLUS COPYRIGHT 2002 ACS
 AN 2002:292085 CAPLUS
 DN 136:332792
 TI IR laser heat mode type negative working lithographic printing plate master
 IN Shimada, Kazuto; Nakamura, Ippei; Sorori, Tadahiro
 PA Fuji Photo Film Co., Ltd., Japan
 SO Jpn. Kokai Tokkyo Koho, 25 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 2002116539	A2	20020419	JP 2000-310808	20001011

OS MARPAT 136:332792

AB The title heat mode type neg. working lithog. printing plate master contains (A) an onium type polymn. initiator, (B) a photothermal conversion compd., (C) a polymerizable compd., and (D) a borate compd. represented by Ar₄B-M⁺ (M⁺ = cation; Ar = arom.) in a photosensitive layer. The printing plate master shows excellent sensitivity and storage stability.

IT 19600-49-8

RL: CAT (Catalyst use); USES (Uses)
(polymn. initiator in photosensitive layer of IR laser heat mode type neg. working lithog. printing plate master to improve sensitivity as well as storage stability)

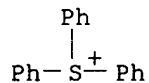
RN 19600-49-8 CAPLUS

CN Sulfonium, triphenyl-, acetate (8CI, 9CI) (CA INDEX NAME)

CM 1

CRN 18393-55-0

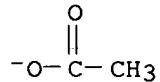
CMF C18 H15 S



CM 2

CRN 71-50-1

CMF C2 H3 O2



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FILE 'REGISTRY' ENTERED AT 10:39:49 ON 23 SEP 2002

L1 STRUCTURE UPLOADED
L2 1 S L1 FULL
L3 116 S C2 H4 O2/MF
L4 0 S TRIPHENYLSULFONIUM ACETIC ACID
L5 7 S TRIPHENYLSULFONIUM AND CARBOXYLATE
L6 2 S METHYLCARBOXYLIC ACID
L7 1 S METHYLENECARBOXYLIC ACID
L8 1 S DIPHENYLIODONIUM CARBOXYLATE
L9 0 S DIPHENYLIODONIUM METHYLENECARBOXYLATE
L10 0 S DIPHENYLIODONIUM METHYLENECARBOXYLIC ACID
L11 1 S DIPHENYLIODONIUM ACETATE
L12 1 S TRIPHENYLSULFONIUM ACETATE

FILE 'CAPLUS' ENTERED AT 10:46:14 ON 23 SEP 2002

L13 16 S L11
L14 17 S L12
L15 104214 S CARBOXYLIC ACID
L16 3 S L14 AND L15

FILE 'REGISTRY' ENTERED AT 10:54:52 ON 23 SEP 2002

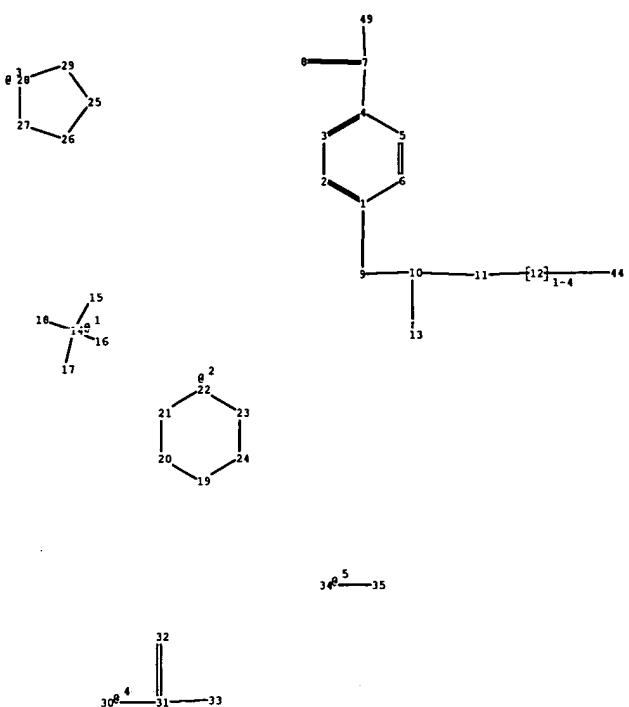
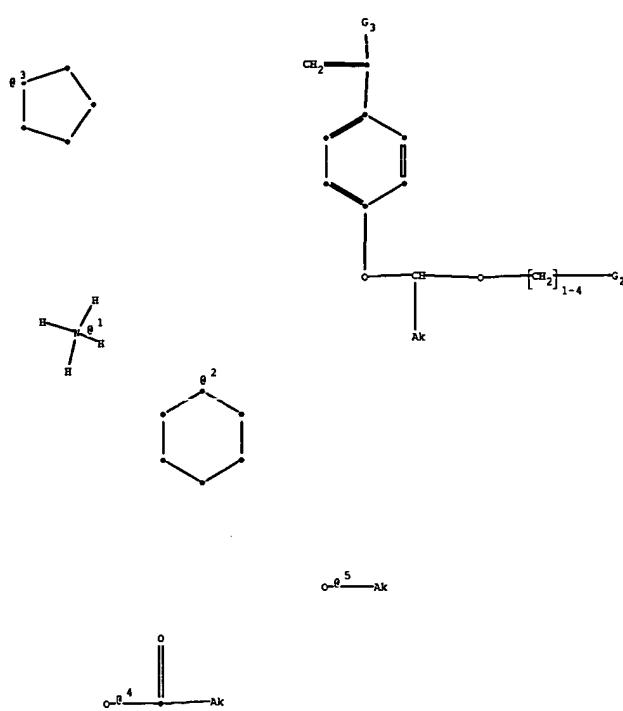
L17 STRUCTURE UPLOADED
L18 87 S L17 FULL

FILE 'CAPLUS' ENTERED AT 10:55:42 ON 23 SEP 2002

L19 34 S L18
L20 3 S L15 AND L19

FILE 'USPATFULL' ENTERED AT 11:10:55 ON 23 SEP 2002

L21 28250 S CARBOXYLIC ACID AND SULFONIC ACID
L22 53836 S PHOTORESIST
L23 915 S L21 AND L22
L24 19759 S SURFACTANT AND POSITIVE
L25 294 S L24 AND L23



chain nodes :

7 8 9 10 11 12 13 14 15 16 17 18 30 31 32 33 34 35 44
49

ring nodes :

1 2 3 4 5 6 19 20 21 22 23 24 25 26 27 28 29

chain bonds :

1-9 4-7 7-8 7-49 9-10 10-11 10-13 11-12 12-44 14-15 14-16
14-17 14-18 30-31 31-32 31-33 34-35

ring bonds :

1-2 1-6 2-3 3-4 4-5 5-6 19-20 19-24 20-21 21-22 22-23 23-24
25-26 25-29 26-27 27-28 28-29

exact/norm bonds :

1-9 7-49 9-10 10-11 10-13 12-44 30-31 31-32 31-33 34-35

exact bonds :

4-7 7-8 11-12 14-15 14-16 14-17 14-18 19-20 19-24 20-21 21-22
22-23 23-24 25-26 25-29 26-27 27-28 28-29

normalized bonds :

1-2 1-6 2-3 3-4 4-5 5-6

G2:Ph,SH,CN,NH2,N,[*1],[*2],[*3],[*4],[*5]

G3:H,CH3

Match level :

1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:Atom 7:CLASS 8:CLASS 9:CLASS
10:CLASS 11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS
17:CLASS

18:CLASS 19:Atom 20:Atom 21:Atom 22:Atom 23:Atom 24:Atom
25:Atom 26:Atom 27:Atom 28:Atom 29:Atom 30:CLASS 31:CLASS 32:CLASS
33:CLASS 34:CLASS 35:CLASS 44:CLASS 49:CLASS

Element Count :

Node 13: Limited
C,C1-4

Node 33: Limited
C,C1-10

Node 35: Limited
C,C1-10